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SPOTLIGHT | OPEN SOURCE

COVER STORY

Plugging In to the Open Cloud

[illegible] **open-source frameworks** can [illegible] in the cloud. But they're not [illegible]

Wide-Open Search

[illegible] **open-source search applications** make a [illegible] toward the enterprise.

Turning Long Demands Into a Short List

36 Barraged with requests for mobile, social and analytics apps, IT must prioritize projects to give the business what it wants.

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“IT should aspire to more than keeping the lights on.

READER FEEDBACK

RESPONSES TO:

Why Google Should Be Allowed to 'Harvest' Your Wi-Fi Data

April 21, 2012

By current U.S. law, Google did not do anything illegal. By custom, however, manufacturers of wireless devices betrayed the trust of their customers. Wireless has been sold as an analog to wired Ethernet. In truth, wireless access points are adapters (another term would be "repeaters") that retransmit wired Ethernet signals through the air by radio.

While in the form of radio waves, those signals are subject to FCC radio regulations, which have always regulated transmitting only. Receiving radio waves has never been regulated, since the broadcast nature of radio would make that a futile effort.

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The problem is that the public expects the same level of privacy as they had with wired systems.

If we want wireless privacy, there are two approaches. One exists today: Always use encryption. The other is to pass regulations that take the profit out of collecting and using data.
Robert Watson

Google broke no laws in the U.S. The lesson is that if you don't want someone accessing your network and data, then be proactive and secure your data and access points. It's that simple.
mesaright

I understand Mike Elgan's position regarding the legality of Google's actions, but this is what concerns me: If Google was driving down streets to capture pictures from street level, why would it tap into Wi-Fi networks, and why would it collect data?
RyckM

From what I read, Google was recording the IDs of the Wi-Fi networks to build up a database for non-GPS geolocation. A device without a GPS, but with Wi-Fi reception, could determine its approximate location by triangulating the Wi-Fi signals it was receiving. It just happened that the Street View Wi-Fi receivers were recording more data than just the Wi-Fi IDs. (If I had been designing the system, I would have just recorded continuous streams of Wi-Fi data, linked with the car's GPS location information, and then filtered all that data offline to pull out the Wi-Fi IDs.) And note that Google was only recording data for the few seconds it took to pass through a given hotspot's reception area. Seems highly unlikely to pick up anything significant beyond the Wi-Fi ID, so I doubt that Google had any nefarious designs on the data.
gbailey

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HeadsUp

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HARDWARE

Tablets Will Be Preferred Devices by 2016

TABLETS WILL become most users' main computing devices within the next four years, Forrester Research analyst Frank Gillett has predicted.

Gillett recently forecast that some 375 million tablets will be sold globally in 2016 — compared to around 56 million in 2011. That prediction is nearly double the amount projected by IDC, which said worldwide tablet sales will hit 200 million in 2016.

There is one major reason for the different predictions: In Gillett's report, tablets figure prominently in many settings, including the workplace, where the devices are useful for sharing and working in groups. "There's no barrier of a vertical screen, no distracting keyboard clatter, and it just feels natural" to share a tablet among co-workers compared to "spinning around a laptop," Gillett wrote in his blog.

For these reasons, "tablets will become the preferred, primary device for millions of people around the world," he said.

In 2016, one-third of the tablets sold will go to business users, Gillett said. The total installed base of tablets by that year is expected to reach 760 million.

Gillett defines a tablet as a device that sports a touchscreen between 7 in. and 14 in. in size, weighs less than 1.75 lbs., has an eight-hour battery life and allows always-on operation.

Even with all the tablet growth, Gillett doesn't see PC sales stopping. "Eventually," be explained, "tablets will slow laptop sales but increase sales of desktop PCs" for creative work that requires major processing power or a large display.

– Matt Hamblen

DATA CENTER

IBM on Path To Cut Internal Apps by 85%

IBM has reduced the number of applications it uses internally by 70%, but that's not enough for CIO Jeanette Horan.

When the company started its consolidation efforts, it had around 16,000 applications. It has since reduced that number to 4,500, "but that's still too many," Horan said.

Horan has given her team the task of cutting the number of remaining applications in half by the end of 2015. That would result in an overall reduction of around 85% from the original 16,000.

"I don't know whether we'll make it or not, but it's a good goal," Horan said in an interview.

IBM's aim is to have common applications across all business units. "If you've got different applications in different countries, you don't have a global process," said Horan, who was appointed to her post a year ago.

Application consolidation is becoming a hot topic again, "especially as organizations are moving some applications to the cloud," said John Longwell, vice president at research firm Computer Economics. A survey that his firm conducted in 2010 found that a little more than a third of organizations had application consolidation projects underway.

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IBM estimates that it has saved around $1.5 billion as a result of application and data center consolidation projects over several years.

– PATRICK THIBODEAU

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BETWEEN THE LINES

By John Klossner

NETWORKING

Going Wireless in the Data Center

BOUNCING INFORMATION around a data center, via 60GHz Wi-Fi, can speed things up by 30% compared to using traditional cables, a group of researchers found. The technique is still being perfected, but it could yield an interesting approach for enterprises in the not-too-distant future.

The method, called "3D beamforming," was created by scientists at the University of California, Santa Barbara. The basic premise is that data center traffic gets tied up at key points during the day because of congestion associated with short bursts of activity. In other words, the key speed constraint is not the total amount of network bandwidth, but rather how much is consumed in those short bursts.

Typically, data center managers try to get around bandwidth issues by maintaining the maximum bandwidth needed to handle peak periods. The rest of the time, though, bandwidth can sit idle. So, rather than continuing to add more infrastructure that's used only occasionally, the idea is to send those bursts of traffic directly between the servers that need the information — avoiding competition with other servers and applications — and to do so at top speeds.

Scientists used mostly off-the-shelf gear to set up the system that creates and transmits the 60GHz beams, according to Heather (Haitao) Zhang, one of six primary researchers. The design they created bounces data over server racks, off metal plates on the ceiling, to specially designed antennas on each server.

Another advantage: The wireless links can be turned off and on as needed, saving bandwidth in the process. But to make sure those connections can be established, broken and remade at will, "the next step is to develop network protocols and management techniques," Zhang said. "We are currently working on these," she noted, adding that she expects this phase of the project to take a couple of years.

– Johanna Ambrosio

Micro Burst

Macintosh computers accounted for just

13%

of Apple's first-quarter revenue. Five years ago, they accounted for nearly half of the company's sales.

INTERNET SECURITY

Google Raises Bug Bounties To $20,000

Google has dramatically raised the bounties it pays independent researchers for reporting bugs in its websites, services and online apps.

The search giant boosted the maximum reward from $3,133 to $20,000, and added a $10,000 payment that will be awarded for SQL injection bugs or for what it deems to be "significant" authentication bypass or data leak vulnerabilities.

In general, though, the Vulnerability Reward Program (VRP) will now pay $20,000 for flaws that allow remote code execution against Google.com, YouTube.com and other core domains, as well as what the company called "highly sensitive services," including its search site.

The term "remote code execution" refers to the most serious category of vulnerabilities: those that allow an attacker to hijack a system and/or plant malware on a machine. People who find other bugs will be paid $100 to $3,133, depending on the severity of the problem and where the vulnerability resides.

Since VRP's introduction, Google has received over 780 eligible bug reports and, in just over a year, paid out around $460,000 to 200 researchers. The company described the higher bounties as a way "to celebrate the success of this [program]."

– GREGG KEIZER

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Oracle Users Prefer Fusion in the Cloud

Customers say the hosted version of the vendor's next-gen application suite is easier to deploy and use than the on-site option. By Chris Kanaracus

MOST OF THE 250 CUSTOMERS that have so far licensed Oracle's recently-launched Fusion Applications have chosen a hosted deployment model, according to a senior executive at the software vendor.

The majority of the customers are also running Fusion "in a coexistence fashion" alongside long-installed Oracle business software, such as the E-Business Suite, while planning to add more Fusion modules over time, said Chris Leone, senior vice president of applications development, during a keynote address at the company's Collaborate user group conference in Las Vegas last month.

The Fusion Applications suite, which finally started shipping last October after some six years in development, is made up of a superset of Oracle's JD Edwards, E-Business Suite, PeopleSoft and Siebel software.

Fusion is the first application suite designed by Oracle primarily for cloud-based delivery, though an on-premises version is also available.

"If you wanted to run Fusion Applications in your company, for the next two years, the only way I would do it is with Oracle hosting," said Michael Brown, technical manager at database consulting firm Colibri.

He said that installing Oracle Fusion on site requires a multilayered identity management framework and a sheaf of other Oracle middleware, as well as expensive servers with large amounts of main memory.

Systems integrator IT Convergence decided to take on the challenge of an on-premises deployment in part because it plans to develop a consulting practice around Fusion and wanted to give staffers first-hand experience with the software.

The company began its implementation of Fusion human capital management software in March, said CTO Gustavo Gonzalez.

He agreed that a software-as-a-service version would be best for most users because "you're removing the installation challenges."

One prospective Fusion Applications customer, Abt Associates, a public policy and business consultancy, won't even consider the on-premises version, said Albina Shekhtman, director of business application services and programs.

"Our direction is: Let somebody else have the headaches," she said.

Abt Associates today runs an E-Business Suite implementation that lacks high-availability functions. "In the cloud, I don't have this issue," she noted.

Shekhtman said that the sole reason she began evaluating Fusion was because she heard it was an online product.

She hopes to first roll out the Fusion human capital management software for recruitment, applicant tracking and employee onboarding, if she's able to convince Abt's human resources officials that it's the right move.

The company's HR department today has "a very complicated situation" with a software portfolio that includes Oracle's E-Business Suite "and a lot of bolt-ons," which has led to inaccuracies and inefficiencies, she said.

In general, Gonzalez suggested that organizations start Fusion implementations "as small as possible."

He also cautioned that users seeking to exchange older software for Fusion licenses should gird for battle, despite Leone's pledge to offer users of older Oracle software license credits for "like-to-like" functionality.

"If you have an HR license, you're going to get that license for Fusion," he said. "[But] if there's any feature you don't have in the core HR, you'll have to acquire it. That's where it becomes tricky. You have to be careful." ◆

Kanaracus *is a reporter for the IDG News Service.*

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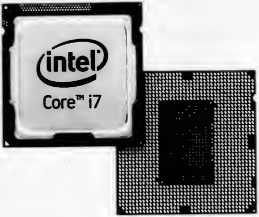

First Ivy Bridge Chips Emerge

Quad-core chips for high-end desktops are the first to ship, with dual-core mobile processors set to follow later this year.

By Agam Shah and Sharon Gaudin

THE FIRST BATCH of Intel processors based on the company's Ivy Bridge microarchitecture — 13 quad-core chips designed to run high-end desktop and laptop PCs — were finally unveiled late last month.

The new quad-core chips are the first products in the long-awaited third generation of the Intel Core processor family to ship.

The second half of this chip family, dual-core Ivy Bridge chips designed for ultrabooks and mainstream laptop and desktop computers, will be ready to ship in the next few months, pledged Kirk Skaugen, corporate vice president and general manager of Intel's PC Client Group.

The initial quad-core Ivy Bridge chips are the first to use Intel's 22-nanometer manufacturing process, marking a technology leap from the 32nm process used to make older Intel chips and still used by rival chip makers such as AMD.

"It is big for Intel [to be] first in the marketplace with 22nm," said Patrick Moorhead, an analyst at Moor Insights & Strategy. "It means a smaller die for better costs and fundamentally enables better power characteristics for better performance at less power."

The new quad-core chips include eight Core i7 processors and five Core i5 processors, Intel said.

The company noted that the addition of 3D transistors in the chips, which was possible because of the move to 22nm manufacturing, improved software and graphics performance while preserving laptop battery life.

Most laptops and desktops today run Intel's second generation of Core chips, dubbed Sandy Bridge, which was introduced early last year. Skaugen said the new chips provide up to twice the high-definition multimedia and 3D graphics performance and a 20% CPU boost.

Acer, which started shipping Ivy Bridge-based PCs the same day Intel unveiled the chips, has said its tests also found that the new quad-core chips offer 20% better performance than the Sandy Bridge processors.

The new Predator and Gateway high-end desktop systems from the Taiwanese vendor run Core i5 or i7 processors; they're priced between $699 and $1,199.

Intel hopes Ivy Bridge-based ultrabooks will blur the lines between laptops and tablets by offering touchscreens, long battery life, always-on connectivity, and gesture and voice recognition capabilities.

Jack Gold, an analyst at J.Gold Associates, called the Ivy Bridge chips "a pretty big deal."

"The lower power and higher performance could be a game-changer," he said. "It will be difficult for AMD to catch up in the short term." The faster boot times and longer battery life for laptops and ultrabooks should capture the attention of corporate IT managers, Gold added.

The new chips are shipping at a time when Intel officials are preparing for a prolonged period of increased demand for desktop PCs. During a mid-April conference call on the company's financial performance, Intel CEO Paul Otellini acknowledged that the Ivy Bridge launch was delayed by a few weeks to ensure that the company had enough inventory to keep up with the already increasing demand for PCs, especially in emerging markets.

Demand will probably continue to increase as problems caused by an earthquake in Japan abate and hard drive manufacturing returns to normal. The expected release of Microsoft Windows 8 later this year should also provide a boost. ◆

Shah *is a reporter for the IDG News Service.*

The lower power and higher performance could be **a game-changer**. It will be difficult for AMD to catch up in the short term.

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THE Grill

Arthur M. Langer

This educator makes it his mission to mint IT professionals on demand.

A little-known fact about you: People see me as an academic, but I spent 11 years at Coopers & Lybrand. Also, I graduated from the Fiorello H. LaGuardia High School of Music & Art and Performing Arts in New York.

What's your favorite vice? Chimay, an ale that's made in Chimay, Belgium, by Trappist monks.

What would you be doing if you weren't in this career? I've always wanted to own a bookstore.

Who's your role model? Winston Churchill.

What's your favorite book? *The Once and Future King* by T.H. White.

What's your greatest ambition? To help many people who came from where I came from.

PHOTOGRAPHY BY ASHLEY HICKS

ARTHUR M. LANGER *is chairman and founder of Workforce Opportunity Services, a nonprofit that uses an outsourcing model to train economically disadvantaged youth and match them with hard-to-fill IT positions. Langer's "skills first" approach stresses getting vocational training and a job upfront, and then gradually fulfilling general education requirements part time to finish a degree in five to six years — leaving students with no debt. And since many families today can't afford the cost of college tuition, Langer's model is one that could have much broader appeal.*

What is Workforce Opportunity Services' mission? It started as a research project about 11 years ago with a group from Harlem, an underserved population. Colleges can't handle nontraditional, underserved populations, and corporations also have difficulty assimilating that type of talent.

Continued on page 14

HERE'S

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> **We have to get kids to work** and advance them in school while they're working. If we don't do that, a vast portion of our population is going to be in trouble.

Continued from page 12

Training is not the challenge. These kids need to work because they don't have any money for school. They end up working 35 hours per week, and before long they can't do it. They drop out. Meanwhile, many companies can't find talent because no one wants to go into that discipline or they can't get people at competitive rates.

So we took underserved young people who were smart and put together a program where they could work for competitive wages while going to school. As they progress through the program, they move from working part time to full time. We became an outsourcing company, but we are a [nonprofit] charity.

How does the business model work? It is an on-demand model for talent. We find the business client first, and they tell us what they need. We ask what skill sets they are seeking, such as Lotus Notes, mainframe Cobol or quality assurance. Then we design a one-year curriculum to train students — not just vocational training, but a curriculum that teaches them how to write and communicate and be successful in the business world. We agree on the content, but it is our responsibility to convert that into an acceptable academic program for a major university.

We then select an educational partner in the area, a flagship institution like Columbia, Penn State and others, and then we find the talent that matches the need best. We allow the client to participate in the selection, and we deliver the talent in under 20 weeks, after an initial six-week selection process and then 13 weeks of the first term. The students work for WOS as consultants. After a year, they get hired away by many of these companies. In many cases, they're hired away early.

Once a student has a job, what is his or her incentive to keep going toward an associate or bachelor's degree? The student gets a certificate from a university, and often that's transferrable into credits at a community college. In New Jersey, for example, the certification issued by Rutgers provides 30 credits, which means the student is halfway through an associate degree.

After they graduate, as long as they're working for us, we pay their education to go part time at night to finish their degree. Once a company hires a student, they take over that obligation. The aim is to have them get a degree after five to six years with no debt.

How is the program funded? Our billings cover our costs. This model will let us transform our educational and job creation system to compete. You can't just keep putting in money from the government.

What has the organization accomplished so far? We have doubled in size three years in a row. We're going into areas where IT organizations are hurting, like Allentown, Charlotte and Jacksonville. We also see an opportunity to grow our service center areas.

We have over 200 consultants today in five states, and we're expanding beyond IT to other areas, such as healthcare and customer service operations. Thirty percent of our consultants are women, and we have very high rates of Hispanic and African American students. We also have over 65 veterans of the Iraq and Afghanistan conflicts working at Prudential, Johnson & Johnson and Sealed Air.

How competitive is the program? Very. For quality assurance positions at Siebel, about 300 people applied. Over 200 finished precertification, and we could select only 30 for the certification program.

It's not just the economically disadvantaged who are having trouble financing a college education. Could this represent a new model for higher education? I think so. The system that we have just doesn't work for a large portion of our population anymore. Going away to four years of college is no longer going to be a solution. They can't afford it, there's too much debt, and they're getting out seeking jobs that aren't there. Universities have to not only become more competitive, but offer lower prices and different types of relationships. Our model is one of the first to do that.

We have to get kids to work and advance them in school while they're working. If we don't do that, a vast portion of our population is going to be in trouble.

They need the skills first, so we do the certification first. Then they go to college while they have a job. Our students are essentially going to school for nothing because their work and billings are covering the costs to allow them to do that.

– Interview by **Robert L. Mitchell**

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OPINION

PRESTON GRALLA

Windows 8 Tablets: A Disaster in the Making

TABLETS WERE clearly top of mind for the designers of Windows 8. The Metro interface sacrifices usability on the PC, which suggests that Microsoft is focused on overtaking the iPad. This design choice was met with conjectures that Microsoft believed enterprises would favor Windows 8 tablets because they'd work in sync with Windows 8 on desktops and could be deployed and managed companywide with the same set of tools.

Windows 8 tablets powered by ARM chips will be no easier to manage than iPads.

Unfortunately for Microsoft, the facts show something else. The company has revealed that any Windows 8 tablets powered by ARM chips will be no easier to manage in enterprises than iPads are. Such tablets won't be able to take advantage of Active Directory capabilities and won't support Group Policies, which are used to manage how machines work on a company network.

Windows 8 on tablets has a confusing past. Windows 8 for ARM devices was originally called WOA (for "Windows on ARM"), and then was recently renamed Windows RT. Not all Windows 8 tablets will run Windows RT; any that use Intel chips will require a different version of Windows 8. And it may well be that Windows 8 tablets with Intel chips will be managed differently than Windows 8 tablets running Windows RT. That certainly won't endear Windows 8-based tablets to IT departments, which face a difficult enough time trying to deploy and manage multiple types of devices. With Windows 8 tablets, IT may have to know what kind of chip each device runs on in order to know how to manage it.

Michael Cherry, an analyst at Directions on Microsoft, told *Computerworld*: "Based on what we know today, a Windows RT device will be no more manageable than an iPad." Michael Silver, a Gartner analyst who covers Microsoft, added, "This solidly positions WOA as a consumer [option]" rather than one for enterprises.

What exactly are Microsoft's plans for managing Windows 8 tablets in the enterprise? It's not completely clear. Based on a blog post by Jeffrey Sutherland, a program manager lead in Microsoft's Management Systems group, it appears that Intel-based Windows 8 tablets will be managed via a combination of System Center Configuration Manager and Windows Intune cloud-based management software.

As for managing Windows RT devices, there are no solid answers yet. But if you read between the lines of Sutherland's post, it appears that Intune will be used for that purpose.

All this doesn't bode well for Microsoft. It will be difficult, if not impossible, for it to unseat the iPad in the hearts of consumers. And Microsoft is also up against the rising popularity of Android tablets, such as the Android Fire and the Nook.

The one area where Microsoft appeared to have an advantage in the tablet market was in the enterprise, since so many IT departments are partial to the rich set of tools available for managing Windows-based PCs. If Microsoft had allowed enterprises to manage both tablets and PCs with the same tools, Windows 8 tablets would have the advantage.

Now it looks like Windows 8 tablets will be no more enterprise-friendly than iPads or Android tablets. Where, then, is the driver to make Windows 8 tablets a hit in the enterprise? And without an enterprise foothold, it's unlikely that Windows 8 tablets will become successful overall.

It all adds up to a potential disaster in the making for Microsoft's plans to crack the tablet market. ◆

Preston Gralla is a *Computerworld.com* contributing editor and the author of more than 35 books, including *How the Internet Works* (Que, 2006).

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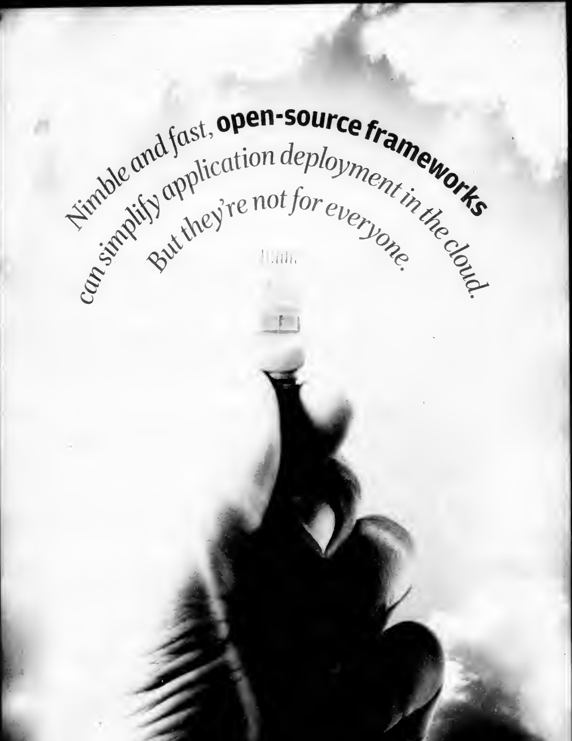

Nimble and fast, **open-source frameworks** can simplify application deployment in the cloud. But they're not for everyone.

PLUGGING IN *to the* Open Cloud

WHEN IT CONSULTANCY OpenCredo set out to launch three new applications within seven months for a major insurance underwriter, it had three goals in mind: Trim development time from the usual years-long pace, allow for frequent changes from the client, and build a system that can handle unpredictable traffic spikes.

KRISCHAM / FOTOLIA

By using the Cloud Foundry open-source framework along with other open-source software, OpenCredo eliminated "heavy lifting" such as configuring virtual machines and adjusting the size of storage volumes, says CEO Russell Miles. The framework allowed developers to write code locally, share it with the client, and automate the integration, testing, and deployment of application components.

Among other advantages, Cloud Foundry makes it easier to scale an application by adding more instances without downtime, Miles says. Because of the way it works with other open-source software, new features can be added in minutes rather than hours.

Even with all those benefits, open-source cloud frameworks like Cloud Foundry are a work in progress. Many manage only physical servers or standalone applications, leading customers who need more sophisticated capabilities to create their own frameworks (see "Two Homegrown Frameworks," page 22). However, they offer compelling value because they mask the complexity of cloud computing setups, and the open-source model is an attractive way to do that.

Understanding the Basics

The term "framework" is used to loosely describe collections of anything from development tools to middleware to database services that ease the creation, deployment and management of cloud applications. Those that work at the level of servers, storage and networks are infrastructure-as-a-service (IaaS) frameworks. Those that operate at the higher level of applications are platform-as-a-service (PaaS) frameworks.

Among the most popular IaaS frameworks are OpenStack, Eucalyptus, and the Ubuntu Cloud infrastructure. Citrix recently announced it was making its formerly proprietary CloudStack IaaS platform part of the open-source Apache project. Gartner analyst Lydia Leong wrote in her blog that this is "big news" because CloudStack is much more stable and production-ready than the "unstable" and "buggy" OpenStack.

Popular PaaS frameworks include Heroku, Cloud Foundry (backed by VMware), and Red Hat's OpenShift, which is built on a foundation of Red Hat Enterprise Linux with support for a variety of languages and middleware through the use of "cartridges."

Customers often use multiple frameworks and associated tools. One example is the use of OpenStack to provision virtual machines, and Opscode Chef to create "recipes" describing how servers should be configured, says Opscode co-founder Jesse Robbins. The further up the "stack" a platform operates, the less work the customer must do, but they also have less control over the infrastructure components, says Matt Conway, CTO at online backup vendor Backupify.

Beyond easing cloud creation, most frameworks claim to make it easier to move cloud deployments among public and private clouds to get the lowest cost and best service. For example, Eucalyptus is meant to provide an Amazon EC2-compatible API that runs on top of Ubuntu Linux (the version of Linux underpinning the Ubuntu Cloud), "so apps authored for EC2 should be transplantable to one's own data center running Eucalyptus," says Conway. "Deltacloud was an initiative by Red Hat to create a 'cloud API' to abstract your application away from vendors like Amazon, and it would proxy your requests to the actual Amazon API."

For online storage vendor CX, OpenStack provides the flexibility to use other cloud vendors besides Amazon "if [Amazon's] services become too expensive or otherwise unsuitable," says CX CTO Jan Vandenbos.

Anthony Roby, a senior executive in Accenture's advanced systems and technology group, says the word "framework" is often misused, and offerings such as Eucalyptus or OpenStack are "not frameworks at all," but "products you can extend or use to build your own infrastructure cloud." However, most observers define frameworks as software building blocks used to create cloud-based services for users.

The Role of Open Source

Open-source projects range from "pure" open-source development initiatives directed by nonprofit foundations that aren't associated with any commercial vendors, to those getting financial, marketing and development help from leading companies (see "Mixed Marriages," page 24).

Canonical, which provides support for open-source efforts and plays a leading role in Ubuntu, has seen interest in open source "from the Fortune 50 to a ton of SMBs and startup companies," says Kyle McDonald, head of cloud at Canonical. Most of the company's OpenStack business has come from Fortune 1,000 companies seeking to reduce software costs, he says.

Continued on page 22

Choosing a Framework

1 Evaluate which components of a "framework" you need, as well as the level (i.e., infrastructure, platform or both) at which you need to reduce your workload.

2 Evaluate the level of support and professional services you'll need.

3 Check support for the specific cloud providers you might want to use, and whether your platform supports the added services (such as replication) your applications may require.

– ROBERT L. SCHEIER

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[1] Case study on LetterGen, an IT services provider in Belgium: redhat.com/resourcelibrary/case-studies/lettergen-relies-on-red-hat
[2] SpecVirt_sc2010 results: spec.org/virt_sc2010/results/specvirt_sc2010_perf.html
[3] BSI Certification for Common Criteria: bsi.bund.de/ContentBSI/EN/Topics/Certification/newcertificates.html

Two **HOMEGROWN** Frameworks

WHEN NONE of the cloud frameworks on the market matched their needs, financial services giant State Street and online backup provider Backupify each wrote their own.

State Street began looking at frameworks in 2009 as a way to more efficiently make use of its global data centers, but it found that most of them were focused only on provisioning and control of virtualized servers "in sort of an abstract way," says chief architect Kevin Sullivan. They couldn't simplify more complex tasks such as the ongoing need to update its 800 applications, provide the level of authentication needed to protect customer data, and discover and reuse services ranging from security to data warehousing that State Street had already developed and wanted to move to its private cloud.

"We wanted to get much higher in the stack from provisioning VMs," Sullivan says, with a platform that "would sit between the application and the infrastructure," making it easier to move applications and services among data centers as business needs changed. In addition, "because we have 3,000 application developers around the world and 800 applications, we're continually introducing new code into the environment," he says. "None of the cloud frameworks dealt with any of that. I didn't think there was anything out there mature enough [and] ready for the kinds of volumes we were going to need."

So, Sullivan says, the financial services firm created "our own internal service registry, where we house all of our metadata describing all the different categories of data in our service framework." Reusing those services was key to developing new applications more quickly and increasing profitability, he explains.

He says he still has a "bias" for open source over proprietary frameworks, not only because of the lower cost of the software, but also because of the ease with which it integrates new capabilities. Sullivan says he is continuing to evaluate open-source frameworks and to use components of them where possible.

Backupify CTO Matt Conway wanted tighter integration between a framework and his infrastructure than was provided by open-source software. So, working "on and off" for five years, Conway wrote his own open-source "rubber" framework for managing multi-instance deployments of Ruby on Rails applications to Amazon's Elastic Compute Cloud (EC2). That was the only way, he says, to manage the number of applications and the amount of data he was storing on EC2, and to provision and deprovision services quickly enough.

– ROBERT L. SCHEIER

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Over the past five years, "there's been a sea change towards open source being viewed as [a] safer bet" than proprietary software, says Chris Haddad, vice president of technology evangelism at PaaS framework provider WSO2. With the rising quality of open-source software, and the backing of major vendors, "large commercial organizations do not see it as a threat," he says. In fact, because of economic uncertainties, "to bet your farm on one company is not seen as a good decision these days," he adds.

Unlike developers working to meet the goals of a corporation subject to the ups and downs of the economy, open-source contributors "are writing software because that is what they love to do," says Conway.

While most early users of open source products, such as Chef, were cloud providers that sold services to others customers, Robbins says he is "seeing a pretty quick shift to pretty rapid adoption in the enterprise" among banks, large media companies and other organizations that are building their own private clouds.

Most users, however, are not yet moving critical applications to the cloud, because they don't have the tools necessary to provide proper IT oversight and security, says Bryan Che, senior director of product management and marketing at Red Hat's cloud business unit. He says Red Hat's OpenShift will help meet these needs, in part by leveraging the security mechanisms already within Red Hat Enterprise Linux.

State Street overcomes security concerns by never acquiring open-source software directly from the Web, but only through trusted partners from which "we can get a support structure as well as the software," says chief architect Kevin Sullivan. Moreover, he says, the company also carefully checks contracts to ensure compliance with the terms of the license, and it scans all open-source software for malicious code.

WSO2 Stratos is already addressing such needs with products to support not only application development and deployment, but also integration, rules, business process management, governance, complex event processing and identity management, says Haddad.

Questionable Benefits?

Some observers question whether open-source frameworks really deliver the benefits they're said to offer — such as portability among clouds providers. "Eucalyp-

Continued on page 24

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State Street

Backupify

Continued from page 20

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Continued on page 24

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If you're a big telco, maybe you are interested in being able to change the code ... but most organizations wouldn't do that. The last thing they want is to have their own specific variant of the product [that they would have to support].

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Continued from page 22

tus replicates some of the Amazon APIs, but if you're using something on Amazon [that] Eucalyptus doesn't support, you're out of luck," says Roby. "Similarly, if you're trying to run Java apps and using the Spring [application development] framework, you've got a fair amount of support." But as soon as a customer begins using features, such as data storage, that can't be accessed via Spring, those features may not run correctly with a different provider. Without the ability to move underlying services as well as the application code, he says, "you don't have any portability."

With open source, users (or a group of users) theoretically could take the source code and tweak it to meet their own needs if a vendor can't or won't. However, few users would want to do that, says Roby. "If you're a big telco, maybe you are interested in being able to change the code ... but most organizations wouldn't do that. The last thing they want is to have their own specific variant of the product [that they would have to support], while losing the ability to take advantage of upgrades from others in the community," he says.

Creating a unique open source "fork" is usually not something you want to do "unless you absolutely have to," agrees Conway, noting that the fork could stagnate without contributions from others.

Much buzz surrounds open source, but proprietary frameworks such as Microsoft Azure or Salesforce.com's Force.com can be better choices "if you have specific needs and that platform already has built-in [elements] to make the job easier," says Shriram Nataraj, senior director in the cloud technology practice at Persistent Systems, a global software development firm. "If you're already a Salesforce customer and want to migrate part of your workload onto a different platform, Force.com can be a very good option for you. If you're already an Office 365 customer and have workloads on [Microsoft's .Net framework] ... it makes sense to go towards Microsoft Azure."

Good fits for open-source frameworks tend to include experimental cloud applications built by

Continued on page 26

MIXED Marriages

OPEN-SOURCE SOFTWARE [illegible] the type of it, [illegible] freely because they know [illegible] will do the same.

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[illegible] software vendor [illegible] While [illegible] open-source [illegible] use OpenStack to [illegible] vendors rule the adoption of [illegible]

— ROBERT L. [illegible]

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ANTHONY ROBY, A SENIOR EXECUTIVE IN ACCENTURE'S ADVANCED SYSTEMS AND TECHNOLOGY GROUP

Continued from page 22

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Continued on page 26

MIXED Marriages

is born when programmers write great software for the love of it, sharing their greatest enhancements freely because they know that others will do the same.

Major software vendors such as VMware and hosting providers such as Rackspace are contributing developer and marketing time to open-source frameworks to drive sales of their other products and services, particularly the 24/7 enterprise-grade support that customers can't always get from the open-source community.

Some commercial vendors offer not only service and support, but also their own open-source frameworks. For example, Dell, a member of the OpenStack community since its creation, has unveiled Crowbar, an IaaS framework that was developed using Chef and includes a reference architecture based on its own servers, OpenStack open-source software, and services from Dell and Rackspace.

The main authors of the OpenNebula IaaS framework founded C12G labs to provide professional services to OpenNebula customers.

Network virtualization software vendor Nicera is leading the development of the Quantum project within OpenStack, which will provide network connectivity for devices managed by other OpenStack services. While its network virtualization layer isn't open source, it does support the open-source Open vSwitch virtual switch. It hopes to use OpenStack to drive sales of its software, much as server vendors rode the adoption of Linux to drive hardware sales, says Alan Cohen, vice president of marketing.

– ROBERT L. SCHEIER

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I didn't think there was anything out there mature enough [and] ready for the kinds of volumes we were going to need.

KEVIN SULLIVAN, CHIEF ARCHITECT, STATE STREET

Continued from page 24

developers who are comfortable with newer, open-source tools. Other likely candidates include applications deployed by organizations such as universities or research labs, which have the technical skills to learn and work with these new technologies, and/or the need for specialized capabilities such as massive databases or advanced analytics, says Roby.

Typical apps deployed using open-source frameworks include Web and social applications, as well as mobile or customer-facing websites, says Jerry Chen, vice president of cloud and application services at Cloud Foundry. Such frameworks are also useful when organizations need to deploy applications quickly and scale them up and down as needed.

Legacy applications requiring hardware or software that may not be supported on the Web tend to be less attractive candidates. "While it is very possible to migrate many data center applications from local servers onto [virtual] cloud-based ones, the ROI is not always clear," says Bill Weinberg, senior director of Olliance Group at software and services provider Black Duck Software. "The downside can lie in potential security issues, divergent response to loading, throughput bottlenecks and availability."

OpenStack and Cloudscale are better choices for complex applications than Eucalyptus, says Nataraj, because they do a better job of hiding the complexity of networking. For an application that, for example, requires a user "to connect from a different IP range," a customer would "have to write custom code to make that happen with Eucalyptus," he says. With OpenStack, the "switches" required to make those new network connections are already present.

The number and quality of developers involved in an open-source project can also be a good indication of the project's quality, many observers say. If developers from several companies are involved, vendor lock-in is less likely to be a problem, says Nataraj.

Roby, however, suggests focusing on a commercial vendor's level of commitment, rather than that of the community. "It's largely a myth that there's a lot of new code being developed by a large group of people," he says. "Any of these successful products are developed by a small group of people," with the community at large "providing feedback and maybe doing testing or providing documentation."

Miles also warns of "token" open-source efforts by partnerships among major vendors. "If both those companies don't really rely on the product for revenue, at any point in time either or both will just walk away, and the product will die," he warns.

The unconventional licensing terms that some open-source developers impose on their software, such as one requiring that "the Software shall be used for Good, not Evil," raise eyebrows in corporate legal departments. Posing a more serious problem are licenses that require a company to share any enhancements with other members of the community — which creates the possibility that the company may have to reveal "best practices" to competitors.

Most experts interviewed say mainstream licenses such as Apache's don't impose such troublesome requirements. In any case, says Conway, his staff's processes and skills are just as important as any code he shares with others. And, he points out, open source also lets him use improvements made by others.

Open-source cloud frameworks have the potential to make it far easier for organizations to meet changing business needs by quickly deploying Web applications across public and private clouds. But to get those benefits, IT architects must sift through the various meanings that different vendors have for their "frameworks" and whether each framework can deliver the level of ease of use they need to meet their specific requirements. ◆

Scheier *is a veteran technology writer. He can be reached at bob@scheierassociates.com.*

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People need search technology [in] virtually everything they do today.

ANALYST, GARTNE

TWITTER, FACEBOOK, the Library of Congress — all of these institutions have mind-numbing amounts of structured and unstructured data that must be indexed and searched quickly. In Twitter's case, that's about 300 million new pieces of information to index every day.

So it's not surprising that such institutions would venture into the seemingly untamed world of open-source search applications, not just for the cost savings, but also for the ability to customize and modify applications quickly. Plus, open source has an active community that can help solve related problems.

But what about other enterprise users? Some 80% of the information in the typical enterprise is now unstructured, including texts, emails, blogs and videos, and that percentage is rising, according to Gartner. All of this data potentially holds value, and today every website is expected to query and produce relevant results as fast as the best Internet search engines. "People need search technology [in] virtually everything they do today. Everybody thinks search [capability] is going to be embedded in everything," says Whit Andrews, an analyst at Gartner.

Right now, most organizations have very constrained search capabilities, which are usually based on SQL queries or specific forms or reports. "That paradigm is soon going to break because the amount of data is just too big, and it's happening much too quickly in a 24/7 environment," he adds.

Big-time Search

Enterprises of all types are starting to explore open-source search applications to get a glimpse into their collections of structured and unstructured data. One such product is Lucene Solr, an open-source search platform developed by Lucid Imagination, a San Mateo, Calif.-based software company.

80%

of information in the enterprise is now unstructured, including texts, emails, blogs and videos, and that percentage is rising.

Interest in open-source search applications began to take off three years ago. "That's when we saw creation of Lucid Imagination, which formed as a commercial support resource" for open-source software, says Greg Olson, senior director at Olliance Group, an open-source consulting firm and a unit of Black Duck Software. "That's a good indicator of mainstream demand for services or a solution around a raw technology like Lucene."

Make no mistake — Lucene is for heavy hitters of search, Andrews says. "Lucene matters for people who need a very sophisticated search offering or product. Its typical [user] is a vendor that needs enormous scale in its application of technologies. It's a great place to use Lucene — you need to be able to search a bazillion things. Where you don't see Lucene used is when an intranet needs a search by next Thursday."

A few other players offer lighter-weight search tools based on the same Lucene open-source technology. For instance, online retailer Zappos.com uses Lucene Solr to power its 63 million customer inquiries each month. But internally, the company deploys open-source search engine Elasticsearch, for "non-website-critical systems or non-performance-bound types of

Continued on page 32

People need search technology [in] virtually everything they do today.

WHIT ANDREWS, ANALYST, GARTNER

TWITTER, FACEBOOK, the Library of Congress — all of these institutions have mind-numbing amounts of structured and unstructured data that must be indexed and searched quickly. In Twitter's case, that's about 300 million new pieces of information to index every day.

So it's not surprising that such institutions would venture into the seemingly untamed world of open-source search applications, not just for the cost savings, but also for the ability to customize and modify applications quickly. Plus, open source has an active community that can help solve related problems.

But what about other enterprise users? Some 80% of the information in the typical enterprise is now unstructured, including texts, emails, blogs and videos, and that percentage is rising, according to Gartner. All of this data potentially holds value, and today every website is expected to query and produce relevant results as fast as the best Internet search engines. "People need search technology [in] virtually everything they do today. Everybody thinks search [capability] is going to be embedded in everything," says Whit Andrews, an analyst at Gartner.

Right now, most organizations have very constrained search capabilities, which are usually based on SQL queries or specific forms or reports. "That paradigm is soon going to break because the amount of data is just too big, and it's happening much too quickly in a 24/7 environment," he adds.

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SOURCE: GARTNER

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Continued from page 30

services," says Aye Thu, search team lead.

Many other search application vendors have recently been acquired by software giants, creating questions about their future direction. Microsoft acquired search application Fast Search & Transfer in 2008 and made it consumable through SharePoint. In August 2011, HP acquired U.K-based Autonomy, and two months later Oracle announced plans to acquire Endeca, which provides unstructured data management, Web commerce and business intelligence solutions.

While none of these software giants has yet indicated that it will stop supporting its newly acquired search engine, "any time your tech provider is bought, it makes you nervous — [especially] if you're another technology provider," Andrews says.

For now, that leaves Lucene Solr as the leading independent enterprise search platform. Lucid reports that 200,000 to 300,000 copies of Lucene Solr are downloaded every month.

People want to use effective search to power their websites, but they don't want to be bothered with the infrastructure, management and maintenance of it.

PAUL DOSCHER, CEO, LUCID IMAGINATION

EMC is using Lucene Solr to build a text analytics add-on for its relational database offering. "If you look at the enterprise search industry, most of the old-school players have either been acquired or gone by the wayside," says George Chitouras, senior director of research and development at EMC. "From my perspective, the technology with the most momentum behind it and the one maturing most quickly is the Lucene Solr technology."

While EMC hasn't moved open-source search capabilities inside its own enterprise yet, Chitouras says he sees myriad uses for the technology in almost any industry. "Any large company has use for information retrieval, whether it's doing call-center processing, customer relationship management, even innovation management," he says.

Open-source Options

In mid-2011, Lucid Imagination released LucidWorks for the enterprise, a subscription-based, enterprise-ready package with support from experts in open-source search. Today, 100 enterprise customers use the product. Lucid also released a cloud-based, search-as-a-service version in February.

Lucid CEO Paul Doscher sees three types of needs driving organizations to use enterprise open-source search. First, "people want to use effective search to power their websites, but they don't want to be bothered with the infrastructure, management and maintenance of it," he says. LucidWorks connects to their websites, crawls the data and creates the response in the search box, "in a much higher capability than what they have right now," Doscher adds.

Second, large enterprises are turning to open-source search when they want to have a sandbox to develop prototype applications — but don't have the developer expertise, infrastructure or hardware to do so.

Third, companies may embrace the open-source option if they're trying to extend the value of the data that they currently have. The search-as-a-service application is likely to appeal to these users, says Doscher. Similar to what Salesforce.com provides, Lucid's cloud application allows users to crawl information in their SaaS applications and then search it more effectively or integrate it with other information inside the enterprise or out on the Web.

"You can use it as an application development platform to develop richer and more effective information applications," Doscher says.

Lucid's chief scientist, Grant Ingersoll, also sees some hybrid uses for open-source search. "You provision your own application internally in your data centers, but then you spill over excess capacity to the cloud-supported [version]," he says.

To stay ahead of competitors, Lucid Imagination plans to move into the business intelligence and data warehousing spaces and enable integration with big-data technologies, Doscher says. "If you put traditional data warehouse or business intelligence-type applications on top of Hadoop, in some instances, it's almost like trying to take this manhole cover of opportunity and shove it through a garden hose," he says. Applying open-source search technologies to these areas will alleviate the pressure built up from too much data and inadequate indexing and search capabilities.

The volume of information stored by enterprises going forward "is going to be scary," Doscher says. Open-source search technology will address this deluge.

"I believe that what Google has done for the Internet, technologies like ours will do for the enterprise by helping to consumerize information inside the enterprise," Doscher says. "Eventually, you will be able to have natural-language queries inside the enterprise that touch all the different databases, applications and ERPs that the enterprise runs. This will allow people to get instantaneous, real-time information that's consolidated and contextually relevant around the subject that they're interested in." ◆

Collett is a Computerworld *contributing writer. You can contact her at stcollett@aol.com.*

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TURNING LONG DEMANDS INTO A SHORT LIST

Barraged with requests for mobile, social and analytics apps, IT must prioritize projects to give the business what it wants.

BY BETH STACKPOLE

AS THE TOP IT executive at Aspen Skiing for the past 16 years, Paul Major has become skilled at keeping multiple balls in the air.

With responsibility for all technology initiatives that support the Colorado resort's four mountains and extensive lineup of hotels, retail shops and rental operations, Major has grown adept at helping his staff of 20 handle IT-related requests from the company's 3,400 employees.

Continued on page 38

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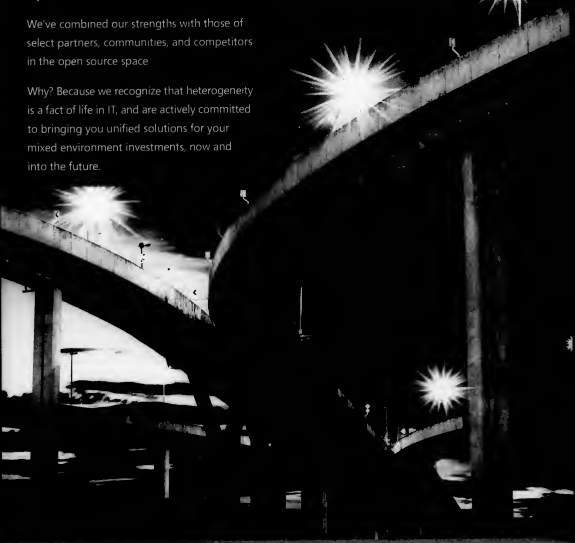

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PAUL MAJOR, MANAGING DIRECTOR OF IT, ASPEN SKIING

Continued from page 36

Lately, however, the juggling act has grown far more intense, says Major, Aspen's managing director of IT.

Thanks to the mania surrounding mobile and social technologies, Major's group is constantly being peppered with requests to launch new projects. A business executive reads about a cool app in an in-flight magazine or Joe in operations overhears casual conversation about technology while on the slopes, and Major's email box starts to fill up.

"The game-changer is the sheer amount of demand on IT for new technologies that don't follow the normal trajectory of IT," says Major. "You can't just have a thousand random requests coming in because so much is new and untested. More than ever, there has to be a voice of sanity about what these technologies are going to do and what the long-term strategy is."

Major is up against the same challenges that a lot of IT shops are facing. Surging demand for new mobile, social and advanced analytics tools is adding to IT's already full plate of traditional enterprise system work. The still-uncertain economic climate doesn't help — tech budgets are up a bit and companies seem more amenable to expanding their IT staffs, but people with expertise in the new technologies are scarce.

In the heyday of IT hegemony, executives like Major would have had an easier time managing priorities. Back then, line-of-business managers looking for new technologies submitted requests and then waited in line for IT to set up their systems. These days, ordinary end users can tap the power of the cloud to get what they want if they think IT is slow or unresponsive.

"The formal models and mechanisms of prioritizing things no longer work," says David Cearley, an analyst at Gartner. "It can't be done in isolation from the business, but rather needs to happen in tight partnership with the business. If IT just says no or doesn't put the right things high on their priority list, business will just go around them."

Against that backdrop, IT is feeling the pressure to get more agile in its delivery methods, more flexible in project prioritization, and savvier in assessing ROI — all so it can work with, not against, the needs of business.

Explaining Pros and Cons

The consumerization of IT, in particular, is driving radical changes not only in what IT needs to prioritize, but in how it interacts with other business units to deliver new tools. IT needs to figure out how to manage, acquire, support and build mobile apps. It also needs to rethink the entire end-user computing experience with mobile in mind, according to Cearley.

Since resources aren't infinite, he says, IT management needs to recast its role to become more of a broker of services — one that works in concert with the business side to understand priorities and then acts to facilitate, rather than impede, new technology deployment.

For example, instead of shooting down a request for a mobile application because of security concerns — or green-lighting another simply because someone thinks it's cool — Cearley says it is IT's responsibility to help the business understand core risks and highlight the technologies available to help mitigate those risks.

"Being proactive means helping the business understand how new technologies like mobile can impact the business," he explains. "Governance cannot be the mechanism to just say no. Governance needs to be the mechanism to help direct and support the requirements of the business."

That's an outlook that Major is taking to heart at Aspen Skiing. With an onslaught of personal devices showing up at work and near universal demand among employees for mobile apps that can support guest services like ticketing and ski rentals, Major put together an executive steering committee to which he

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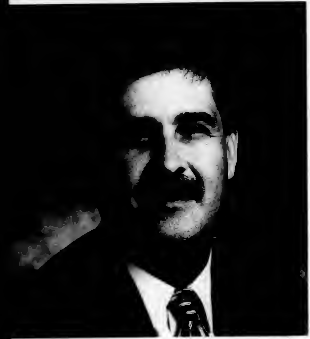


Business people and the marketing team are so wanting this technology, they are willing to work with developers, literally sitting at the desk with them throughout the day answering questions.

ERIC WILLIAMS, FORMER CIO, CATALINA MARKETING

Continued from page 38

introduces new technologies and presents case study examples, encouraging feedback and collaboration to get the creative juices flowing.

Once ideas start to percolate, Major enlists help from a different management focus group, this one charged with finding practical applications for those big ideas and using traditional financial tools to determine ROI.

"There's no such thing as fake dollars in a company — everything costs money. And especially in this financial climate, things need to be scrutinized," Major says. "You have to apply whatever tools are in your financial quiver" to justify or deny new proposals.

So rather than signing off on a virtual desktop client that would have allowed Aspen's enterprise apps to run on a mobile platform — but needed to be developed from scratch — the management focus group instead suggested a bandful of specific ticketing, rental, retail and human resources applications that could run on employee-owned devices without the high costs and labor associated with mobile development.

Taking Stock of the Portfolio

In addition to involving business directly in the prioritization process, Major is kicking off a new project portfolio management strategy to rein in what he says is an unsustainable number of projects in the IT pipeline.

Working with a strategic group of six people evenly split between IT and finance, the team is conducting interviews with senior staff members from every area of the business to identify all current and requested IT projects — anything as complex as a call for a new business intelligence system or as simple as an order for a new mouse.

The projects are then categorized to find opportunities for reuse and optimized licensing arrangements. "The idea is to see at a high level what we're doing, find out where we want to be in 18 months, and then categorize projects using man-hours, costs, risks and priorities," Major says. "If we can distill out of the list the top five or 10 projects, we can present those to executive leadership and get decisions about funding."

Developing Apps in a New Way

At Catalina Marketing, new mobile apps and business intelligence projects are so central to the corporate charter that business units are eager to work in step with IT to lobby top management for support.

As a result, Catalina's 250-person IT department has essentially been given a blank check to bring in the resources that it needs to get the job done, "and there is no argument about moving [other projects] down the hierarchy list," explains Eric Williams, former CIO at the company, which provides promotions and marketing services to clients in the retail and healthcare industries.

"Sales teams in the different business units have made it clear to the CEO that this is where we need to be," says Williams, who retired last December.

The high level of involvement from business stakeholders has also spurred IT to rethink its development process, moving from a very structured, waterfall method to a more ad hoc approach where IT teams up with marketing or other business units to quickly build a mobile app or launch an analytics program — sometimes in a matter of days rather than weeks or months.

"Business people and the marketing team are so wanting this technology, they are willing to work with developers, literally sitting at the desk with them throughout the day answering questions," Williams says. "It's much more cohesive integration of product development than I've seen in the past."

Williams admits there has been a ramp-up to the new, more agile approach and that the team is doing a bit of on-the-fly learning as it takes on mobile app development. Yet even with these adjustments, Williams says programmers have been able to complete a steady stream of mobile and business intelligence projects in a timely fashion.

Soliciting Input

Northern Kentucky University has also adjusted its prioritization process, moving to a more open system where input is solicited from advisory committees made up of faculty, staff and student representatives, according to Timothy Ferguson, associate provost for information technology and the university's CIO.

IT has to listen to end users, says Ferguson.

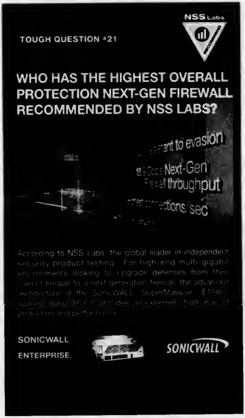
"Previously, we took a more traditional IT perspective and worked through management to get priorities approved and get funding as needed," he explains. "Now, with the impact of things like social media and mobile so widespread, we're listening more to end-user demands and are less worried about back-office [computing] as we go through the prioritization process."

When it comes time to actually develop new mobile and social media systems, Ferguson has access to a unique resource: students in the university's computer science program who not only have technical expertise, but also are well acquainted with new technologies. "They've grown up with this technology, they are connected, and this is the way they've always worked," he says.

Ferguson has enlisted five or six student developers to work 25 hours a week on new projects. So far, it's been a win-win situation: The students are teaching the IT staffers a lot about emerging technologies, and the veteran IT professionals are helping the students understand what it takes to write back-end applications as well as teaching them about enterprise issues like authentication and security.

Automating Mobile Development

At international freight transportation company CSX, the IT department is using automated tools to manage its lengthy queue of projects, especially those that involve mobile development.



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Demand from business users for mobile apps was outstripping the IT department's ability to keep pace, according to Jon Yuan, a solutions architect on CSX's enterprise architecture team.

What's more, because CSX has a liberal bring-your-own-device policy, IT was struggling to stay on top of the wide range of platforms it needed to support, principally Apple iOS and several flavors of Android.

"We're finding that mobile is a different animal. There are considerations that we didn't have to take into account with past technologies," not to mention business users who expect fast turnaround, Yuan says. "People are used to getting things in near real time. They don't want to wait six months for new functionality."

To help expedite development, the IT shop turned to a mobile enterprise application platform (MEAP) from Verivo (formerly Pyxis Mobile).

MEAP tools allow developers to design an app once and then quickly deploy it on any of a variety of mobile platforms — without writing unique versions for each one, Yuan explains.

Instead of having to recode apps to support each individual Android device and for every operating system upgrade, Yuan's team now develops apps using the MEAP's drag-and-drop development environment. Subsequently, they can deploy the app to run on any device without modification.

At Aspen Skiing, being responsive to user demand for new technologies, in a fiscally responsible way, defines this new era of IT, says Major.

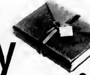
Without formal methodologies for prioritization and proactive governance, IT departments run the risk of being marginalized — a risk that Major says he's not willing to take.

"There is not enough space today to miss important technology opportunities. You will be overrun by rogue IT," he says. "Departments will take things into their own hands."

The result, he says, is something most IT managers don't like to contemplate: "Instead of strategic technology decisions, you will end up with one-off projects that go well for six to nine months, and then IT is overrun with calls from people looking for support." ◆

Stackpole, *a frequent* Computerworld *contributor, has reported on business and technology for more than 20 years.*

Security Manager's Journal



MATHIAS THURMAN

A Data Center in the Cloud

Trouble Ticket

» At issue: SaaS server provisioning could lead to security woes.

» Action plan: Implement tight security, application and infrastructure controls.

MY COMPANY has outgrown its offices and will be moving to a new facility next year. While the company as a whole will have more space, the data center will shrink to less than half the square footage it now occupies. The goal is to decrease the data center footprint by 60%.

Naturally, the cloud will be key to that data center shrinkage. And of course, whenever the cloud comes into play, security concerns have to be taken into consideration.

At this point, we have a lot of experience with cloud infrastructure. We usually choose software-as-a-service vendors for new enterprise applications, our engineering departments build demos in public cloud environments, and even our own product is a SaaS offering.

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We will be hosting our servers in three types of environments. The first, a public cloud provider such as Amazon EC2, will have no relationship with our internal network. The second is what I call a hybrid cloud in which we host infrastructure (including virtual servers) at a third-party data center and build a VPN tunnel back to our company, creating a trust relationship. The third is a private cloud, where we will host a virtual environment on our own network.

To govern, automate, control and gain visibility into these various environments, we've been looking at a couple of companies that offer a one-stop shop for the provisioning of servers in all three cloud environments. This is the part that scares me. I don't want engineers who access this new platform to be able to provision a server on our company's DMZ, by mistake or otherwise. Nor do I want them to be able to provision critical production servers on Amazon. I'm very sensitive about our Internet exposure.

I'm also uncomfortable with the idea that much of our data center infrastructure will be accessible from anywhere on the Internet. Today, if an engineer wants to provision a server, he has to be physically located in one of our facilities or be on our company network. The cloud opens things up so much that a server could be provisioned from an untrusted Internet kiosk in Mexico, for example.

Therefore, I've asserted five security requirements for this initiative.

The first is that access to the new platform, and any company-sensitive data stored on it, must either be restricted by IP address or incorporate some form of two-factor authentication. Regardless, access needs to be encrypted.

The next requirement is for strong profiles that limit and, if necessary, build workflow for the provisioning of certain servers. This would prevent the unnecessary build-out of a DMZ or production server and keep our intellectual property from being exposed in less secure environments. These profiles must integrate with our company's Active Directory infrastructure, so when an employee is terminated, access to the new platform will be removed.

Third, all servers must comply with our configuration management policies regarding things like patch management, antivirus protection, the disabling of unnecessary services and central management.

The fourth requirement concerns availability and calls for sufficient failover, a disaster recovery plan and the expectation that the SaaS provisioning application will be operated out of a data center that complies with SAS 70 or SSAE 16.

Finally, the provisioning service must offer robust reporting and logging so we can identify any abuse or security issues. Of course, the logs must be compatible with and able to be transmitted to our event monitoring infrastructure.

These are the main security, application and infrastructure controls that we must address as we progress toward this new era of server provisioning. ◆

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

We will be hosting our servers in three types of cloud environments: public, hybrid and private.

Security Manager's Journal

MATHIAS THURMAN

A Data Center in the Cloud

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Trouble Ticket

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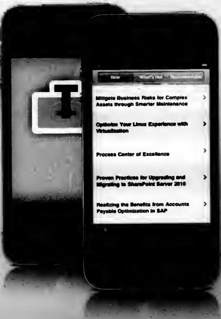
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TECH DISPENSER

OPINION

THORNTON A. MAY

IT Needs to Aspire and Really Make a Difference

IT should aspire to more than keeping the lights on.

VICTOR HUGO, the great writer of 19th-century France, said, "You can resist an invading army; you cannot resist an idea whose time has come." The same can be said of technologies.

Currently, four transformational technologies define the IT agenda: big data, social networking, mobile and cloud computing. You can't resist these technologies, but the question is whether you will deploy them resignedly — that which can't be resisted must be accommodated — or exploit them aspirationally, in ways that really make a difference.

In the pattern of technology adoption called "mirroring," an organization identifies a new technology, "sandboxes" its properties via a series of controlled-risk internal experiments and finally applies that technology to existing work processes. The new technology is deployed to mirror the existing way of doing things.

When it comes to transformation and aspiration, this is about as low as you can get. If you don't see that, think of the classic case of mirroring: As Americans transitioned from a nation of radio listeners to one of television watchers, the initial rollout of the new technology featured radio performers reading scripts. The only thing that changed was that the technology had moved beyond the microphone to include a camera.

With the hindsight of several decades, we can all easily see how that approach underutilized the potential of television. But can we see as clearly how we are underexploiting the new technologies now available to us? Do we really need to take baby steps with these powerful and potentially game-changing tools? Shouldn't we change our mindset and aggressively explore what previously impossible things these new technologies allow us to do?

I believe we should. IT should aspire to more than KTLO (that's "keeping the lights on"). But too often we don't. A management framework in widespread use today divides IT investments and technologies into three buckets: running, growing and transforming the business. On average, 65% of IT spending goes to running the business, 25% to growing it and a mere 10% to transforming it. This has to change. Are you the leader who can make that happen — who insists that transformational technologies be deployed aspirationally?

If you're wondering where to start, there's no question that big data in general and high-performance analytics in particular are a source of competitive advantage. The convergence of improved analytics, larger bandwidth, cheaper storage and increased computing power gives senior management the opportunity to materially compress the time it takes to know key things about markets, customers, competitors and events.

Retailers know this. Retailing has become a know/don't know blood sport. The most powerful tool for modern retail gladiators is analytics. In the past, a retailer might have looked at product data by class or subclass, aggregated at a company level, at monthly and sometimes weekly intervals. Today, retailers need data granularity that focuses on specific SKUs and stores, analyzed and acted upon every day, if not several times a day.

Let me close with another quote, this one from the Renaissance poet Giambattista Marino: "Let him who cannot amaze work in the stables." With regard to big data and high-performance analytics, he who does not aspire will not work at all. ◆

Thornton A. May is author of *The New Know: Innovation Powered by Analytics* and executive director of the IT Leadership Academy at Florida State College in Jacksonville. You can contact him at thorntonamay@aol.com or follow him on Twitter (@deanitla).

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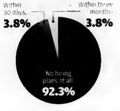
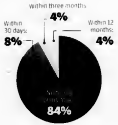
Career Watch

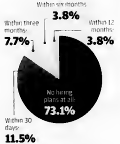
Hiring Expectations

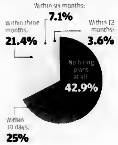
The numbers are up for IT staff, especially in the short term.

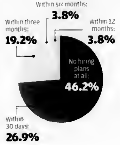
Do you plan to hire people in the following categories during the stated periods of time?











[illegible]

ASK A PREMIER 100 IT LEADER

Brent R. Stahlheber

jump-starting a young career office politics.

I graduated last spring with a computer science degree and some decent coding chops, but I'm still unemployed. How can I jump-start my career? Preparation is key to [illegible] career [illegible]. [illegible] the companies you are interested in [illegible] understand their business and target [illegible], the way they interact with their customers [illegible]. Model your resume to show how your skills [illegible] needs while keeping clearly within the straight [illegible] might also consider asking others to help you get a foot in the door — your network is more important than ever a[illegible] college.

If you have a question for one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com, and watch for this column each month.

If you've prepared adequately but still aren't getting any at-bats, it's time to show your entrepreneurial spirit. I am not sure where your core CS degree lies, but if you have strong Web skills or mobile skills, you could research a company's website or mobile technology (including the lack thereof) and design and model suggestions for improvement. Show them how a Gen Y skill can help their company. If you [illegible] the [illegible], ask for the name of the chief marketing officer and send him or her your suggestions with a nice cover letter.

The other option is to get out in the community — walk in the doors of some smaller businesses and tell them about your background. Offer a 90-day contract-to-hire opportunity, where they can simply choose not to hire you if they feel it didn't work out.

Good luck!

I took a job at a smaller company last year, hoping for a workplace where office politics were less intense. But they're actually more intense here. What's the best way to stay out of all that nonsense? Office politics are a part of any job — small company or large. Politics are not necessarily bad, and there is no real way to avoid them. So the question must be how to effectively cope with them.

To be successful, you must learn the rules. Politics is the most competitive game you will ever learn, and playing poorly can cost you recognition, opportunity, promotion and even your job. First, remember that office politics differ from office gossip — stay out of the latter. Office politics center on someone trying to gain advantage. It is the way workers engage together. This can be positive, when leveraged for cooperation, or negative, when used to compete. Learn the dynamics of the organization. For example, how is collaboration rewarded?

If you help others be stronger without shining the light on yourself, you will gain powerful allies. Share information from the outside through independent research that you completed that helps your colleagues or manager see opportunities.

Being nonthreatening and collegial will go a long way toward winning this powerful game.

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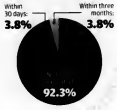

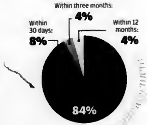

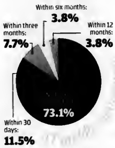

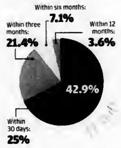

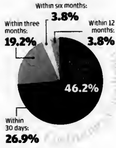

Note: Percentages may not add up to 100 because of rounding.

SOURCE: JANCO ASSOCIATES, JANUARY 2012 SURVEY ON HIRING TRENDS AMONG 107 U.S. ORGANIZATIONS

ASK A PREMIER 100 IT LEADER

Brent R. Stahlheber

[illegible] Club Group [illegible] jump-starting a young career and coping with office politics.

I graduated last spring with a computer science degree and some decent coding chops, but I'm still unemployed. How can I jump-start my career? Preparation is key to a successful career opportunity. Have you studied the companies you are interested in working for? You should try to understand their business and get a feel for the culture by the way they interact with their customers through public forums. Model your résumé to show how your skills fit the company's needs – while keeping clearly within the straight line of integrity. You might also consider asking others to help you get a foot in the door – your network is more important than ever at this stage following college.

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IT|careers

SHARKTANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Well, It Sounded Good

Network support pilot fish working at a chip fabrication plant gets a Priority 1 ticket: One of the fabs is completely down. "My boss and I ran to check that all the switches were up and running," says fish. "Everything checked out with all the edge and core switches. We were able to ping the tools connected to the network and see that data was flowing to them correctly. We called the fab supervisor who reported the issue to see if they were still having problems. He said everything had come back online and wanted to know what had caused the problem. My boss, without skipping a beat, said, 'One of the network cables was nicked, and all the bandwidth had leaked out. We poured more bandwidth into the cable and taped it up.' The fab supervisor said, 'Great! Thanks,' and hung up. We got a 100% on our resolution survey when we closed the ticket."

Get It in Writing

PC with a built-in RAID controller begins reporting an error on one of its drives, so naturally this pilot fish calls the vendor, who replaces the drive under the service contract. When the same thing happens a few days later, fish requests a new RAID controller. But the manufacturer's tech support guy insists that first fish must upgrade the firmware on the disk drives. Wait, fish says, they've run fine with this firmware since I got the computer, and this problem just started. The firmware can't be the problem. Can you assure me this upgrade won't cause any issues? Tech does – and after the upgrade, the PC won't even boot. Fish calls the vendor again, pointing out that he objected to the tech's bad advice and now wants the vendor to make things right. Rep's response: "Surely it was just bad luck, not our fault. Perhaps you were not clear enough when you objected." Says fish, "As it happens, my conversation with tech support was via online chat. I told the rep, 'I have the full transcript, word for word. To whom would you like me to send it?' Eventual outcome: The manufacturer replaced the entire PC with a current – and much faster – model under warranty."

Run-on Run-in

This pilot fish works on an incident management support team that uses instant messaging almost constantly. "While following up on an open incident, I sent an IM to a teammate to ask her if I could assist on an item that needed follow-up," says fish. "The chat went like this. Me: 'Hi. Do you want me to follow up on IM0123456 for you? An update is due.' Teammate: 'I don't have to thank you.' The response puzzled me until I got a chance to talk to my teammate. Her reply should have been *two* sentences: 'I don't have to' – meaning, 'I don't have to *follow up*' – followed by 'Thank you.' "

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OPINION

BART PERKINS

Court Has Compromised Software Rights

So it's against the law to steal office supplies, but it's OK to steal valuable software?

ON APRIL 11, our judiciary system failed the IT industry by limiting the ability of corporations to protect their internal software. Specifically, the U.S. Second Court of Appeals reversed the 2010 conviction of Sergey Aleynikov under the Economic Espionage Act (EEA). During his last day as a Goldman Sachs programmer, Aleynikov uploaded proprietary software that enhances Goldman's high-speed trading capabilities. Shortly thereafter, he joined a company that develops software tools for financial services firms. What a coincidence.

While the judges acknowledged that the code Aleynikov used was "highly valuable," they ruled that he had not violated the EEA, since Goldman had developed the code for internal use, not for sale. Further, he had not violated the National Stolen Property Act (NSPA), because he hadn't stolen a physical object. So it's against the law to steal office supplies, but it's OK to steal valuable software?

This ruling is disastrous if your company has developed software for internal use. You need to take the following precautions:

Alert executive management. IT leadership needs to make executives aware of potential exposure. Executives who read about the ruling may not fully appreciate how legal protection for company systems that provide competitive advantage has been compromised. Even if your risk is small, you don't want someone else — an outside adviser, a board member or the CEO's golfing buddy — to alert executives to the Aleynikov case.

Audit software safeguard practices. Most companies implemented safeguards — including security measures to protect code, and employment contracts to preserve the company's rights — years ago. But all safeguards must be periodically updated for relevance and tested for compliance to standards. This can be particularly difficult in decentralized or multinational corporations.

Collaborate with legal, HR and public relations. Help the legal department understand the implications of the case. The ruling makes it much more difficult to use either the EEA or the NSPA to protect the company's rights. In the event of a similar theft, legal action must depend on other laws or corporate employment contracts (in compliance with state labor laws). If a theft occurs, be proactive about press coverage; litigation can easily become a public relations nightmare, portraying the heartless corporation pitted against the little guy.

Demand clarity from Congress. Judge Guido Calabresi of the Second Circuit wrote a separate opinion saying that he found it difficult "to conclude that Congress, in this law, actually meant to exempt the kind of behavior in which Aleynikov engaged." He went on to ask Congress to clearly define criminal behavior under the EEA. Work with your lobbying organization to request congressional action. And make sure someone in your organization is responsible for monitoring legislative progress.

The EEA and the NSPA were probably adequate when written. But the needs of IT organizations have eclipsed the understanding of law-making bodies worldwide. Congress needs to update both acts to reflect current technological capabilities.

The Aleynikov ruling only encourages other thefts of valuable IT software. Fight back. Think creatively. (Potential thieves surely will.) What development processes, employment agreements, security procedures or other safeguards need to be established or updated in your corporation? Take action before it's too late. ◆

Bart Perkins is managing partner at Louisville, Ky.-based Leverage Partners, which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.

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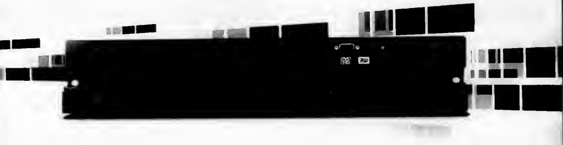

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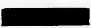

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TBR Report – "IBM System x® x86 servers Meeting the demands of today's enterprises by combining value and support " January 2012

Source Intel® Performance comparison using SPECfp_rate_base2006 benchmark Baseline score of 267 on prior generation 2S Intel® Xeon® processor X5690 (3.46 GHz, 6 core, 12 MB L3, 6.4 GT/s, 130 W) based platform published at www.spec.org as of Sept 6, 2011 Estimated new score of 486 on 2S Intel® Xeon® processor E5-2690 (2.90 GHz, 8 core 20 MB L3, 8.0 GT/s, 135 W) platform is based on Intel internal measured estimates as of Sept 6, 2011, using two Intel® Xeon® processors E5-2690, Turbo Enabled, EIST Enabled, Hyper-Threading Enabled, 64 GB memory (8x8 GB DDR3-1600), Red Hat Enterprise Linux Server 6.1 beta for x86_6 Intel® Compiler 12.1

x3650 M4 supports up to 768 GB of memory using 32 GB LRDIMMs in 24 memory slots. Previous generation x3650 M3 supports up to 192 GB of memory

[4] Ships with four 1 GB Ethernet ports standard and supports integrated slot-less 10 GB Ethernet with Virtual Fabric Previous generation server includes two 1 GB Ethernet slots and requires use of a PCI Express slot to support 10 GB Ethernet

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